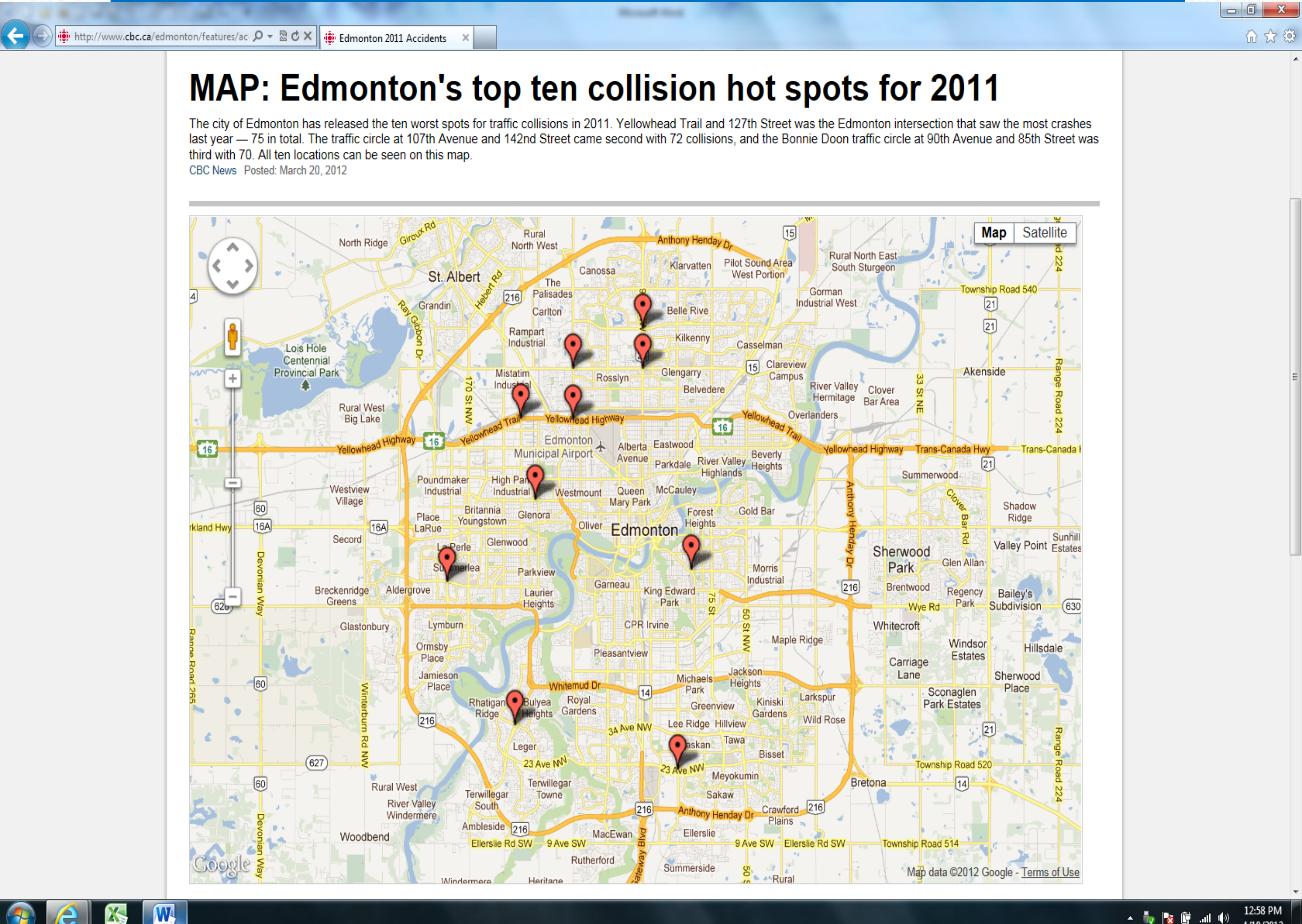
DISASTER CHARACTERISTICS

And Implications for AR – Tom Cox VE6TOX

DEFINITIONS

- **Emergency:** A predictable event, threatening life/safety, property or the environment, adequately handled by emergency services.
- **Disaster:** An unusual event, threatening life/ safety, property, or the environment. The event may exceed the capabilities of emergency responders, hinder the responders, or render the response ineffective.



MAP: Edmonton's top ten collision hot spots for 2011

The city of Edmonton has released the ten worst spots for traffic collisions in 2011. Yellowhead Trail and 127th Street was the Edmonton intersection that saw the most crashes last year — 75 in total. The traffic circle at 107th Avenue and 142nd Street came second with 72 collisions, and the Bonnie Doon traffic circle at 90th Avenue and 85th Street was third with 70. All ten locations can be seen on this map.

CBC News Posted: March 20, 2012

UNSURE?

- Throw some more police at it
- How many police officers would have stopped hurricane Katrina?
- How many fire fighters would it take to stop the World Trade Centre from coming down?
- “The arrival of the emergency services has little, or no, effect on a disaster…”

DISASTER?

- This is NOT a disaster for your community.
- It is for the family who lives here.

THE CONTINUUM

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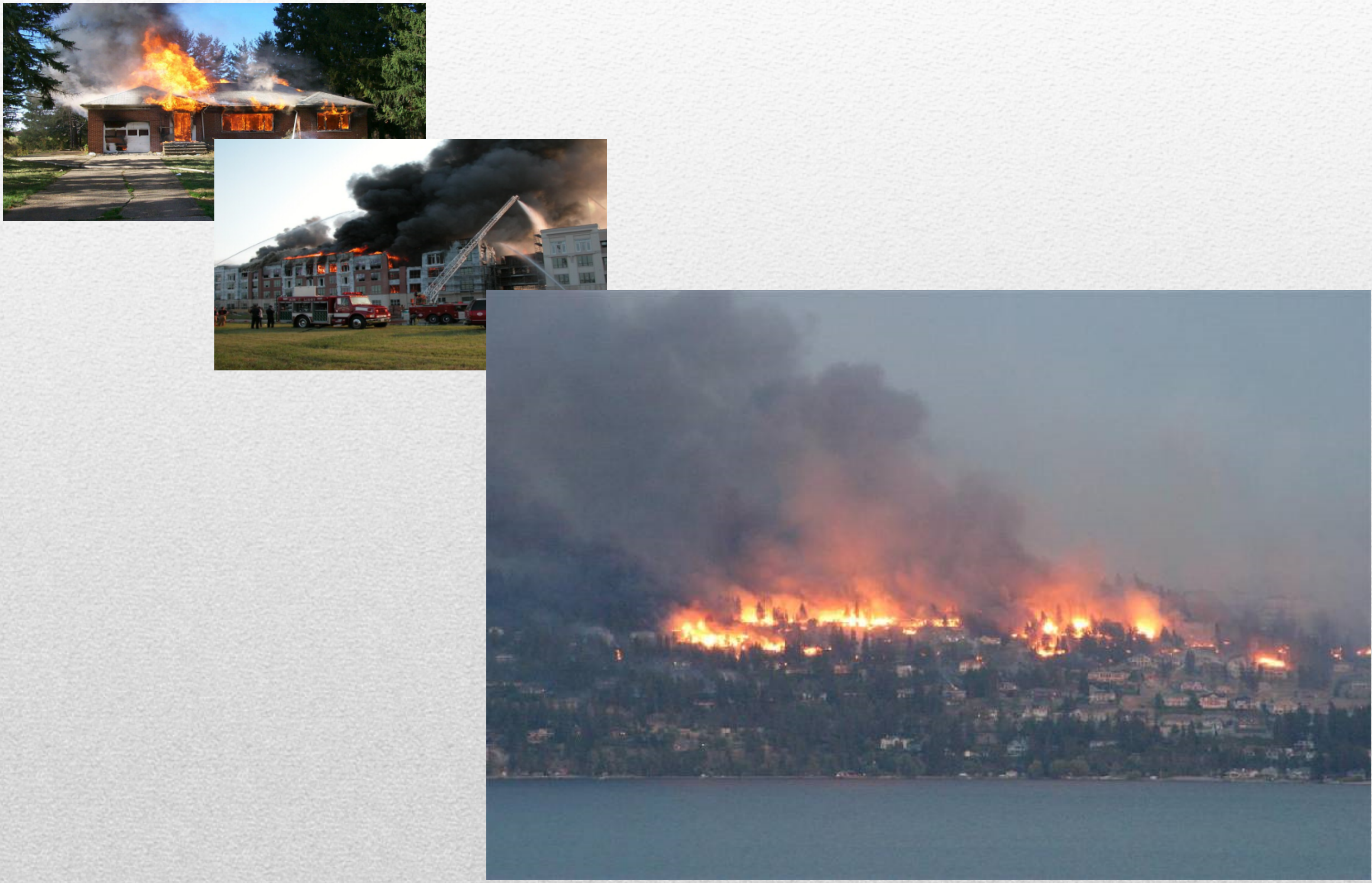
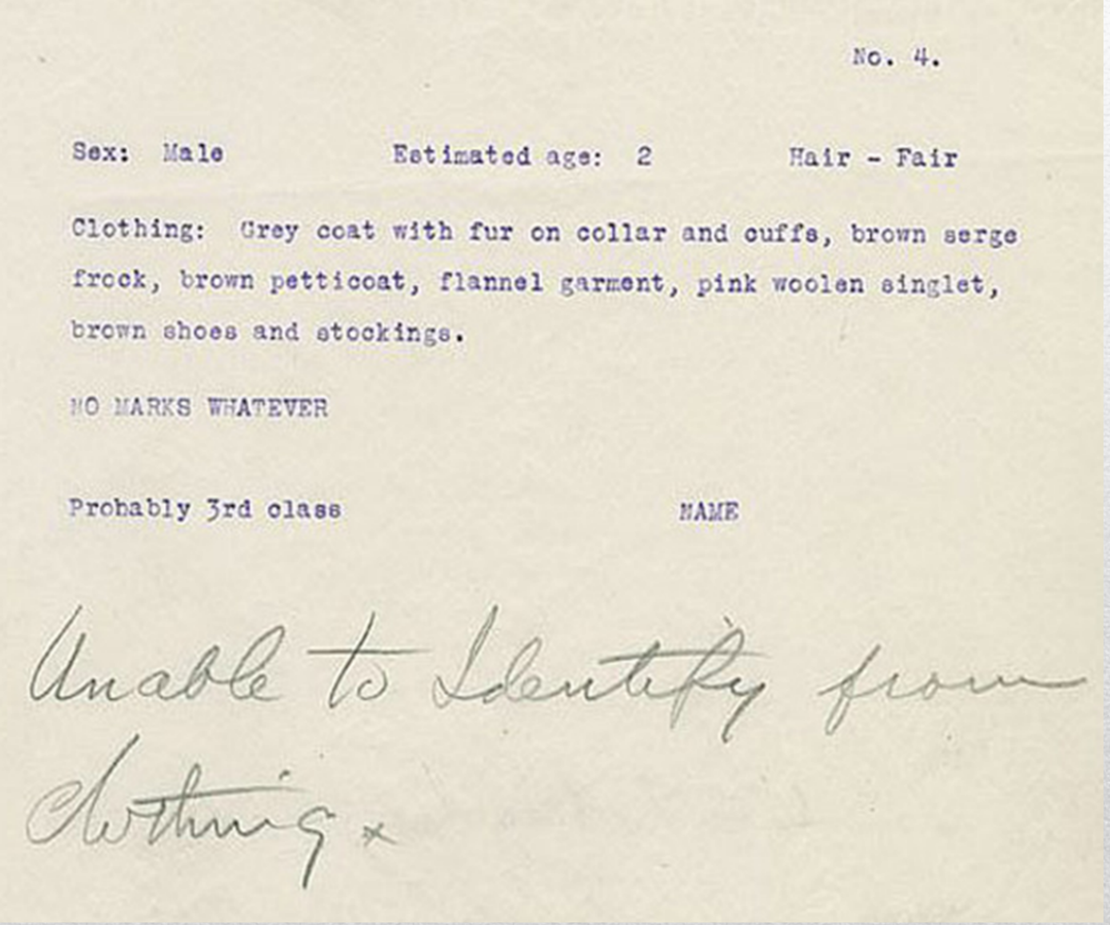


THE CONTINUUM

- There is no cut-off between an emergency or disaster
- Disasters are NOT simply large-scale emergencies
- Disasters have distinct characteristics.
- There is a tipping point between emergencies and disasters.
- So where is the tipping point?

THE TIPPING POINT

- Capacity
- Training
- Experience



No. 4.

Sex: Male Estimated age: 2 Hair - Fair

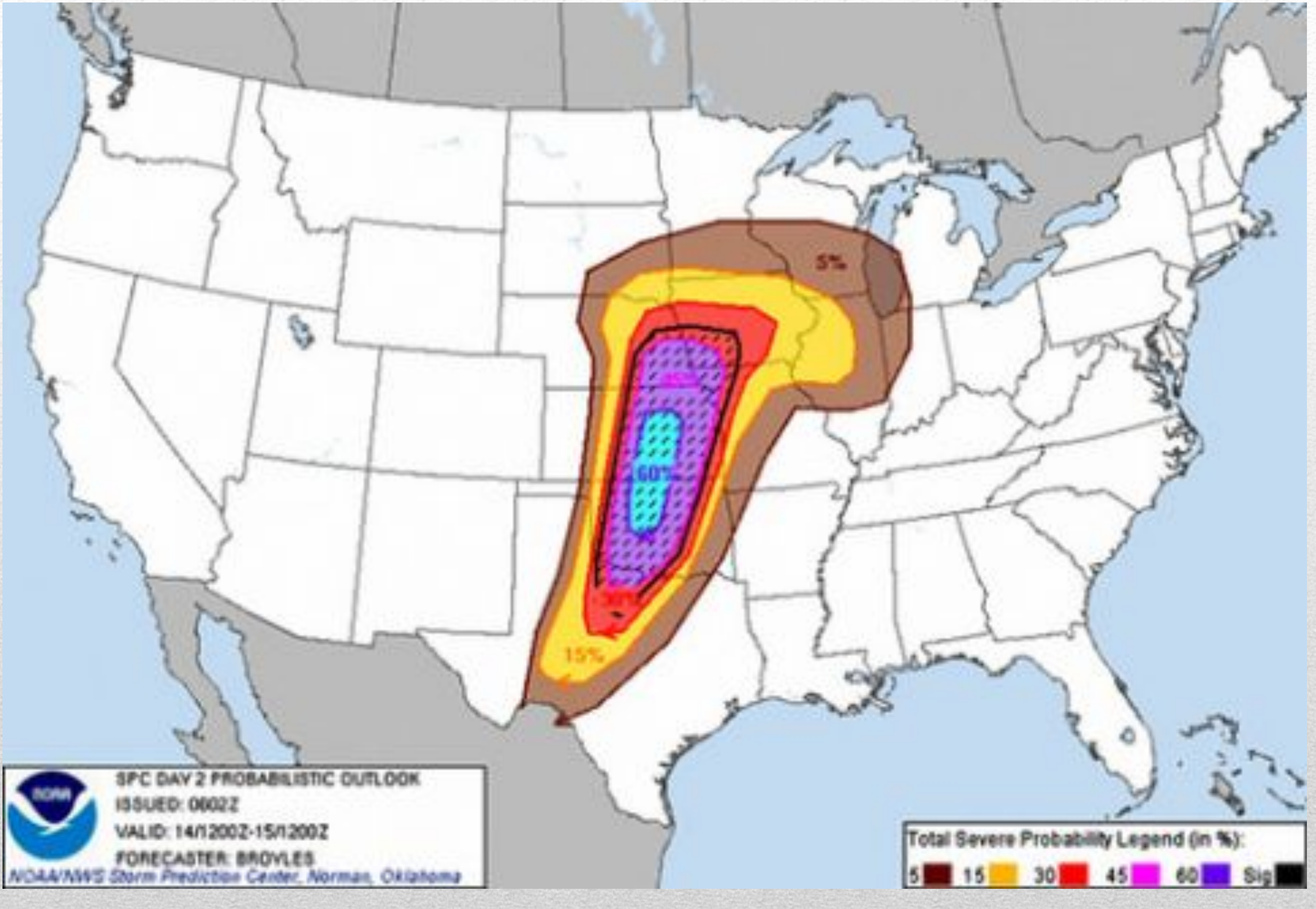
Clothing: Grey coat with fur on collar and cuffs, brown serge frock, brown petticoat, flannel garment, pink woolen singlet, brown shoes and stockings.

NO MARKS WHATEVER

Probably 3rd class NAME

Unable to Identify from Clothing ×

EXTREME
FIRE HAZARD
DON'T EVEN FART
IN THE FOREST
www.StrangeDangers.com


5%
30%
60%
30%
15%
SPC DAY 2 PROBABILISTIC OUTLOOK
ISSUED: 0602Z
VALID: 14/1200Z-15/1200Z
FORECASTER: BROYLES
NOAA/NWS Storm Prediction Center, Norman, Oklahoma
Total Severe Probability Legend (in %):
5 15 30 45 60 Sig

NOT ALL THE SAME!

FAST / LOCAL

- Explosion
- Tornado
- Flash Flood
- Terrorist Incident

FAST / REGIONAL

- Earthquake
- Tsunami

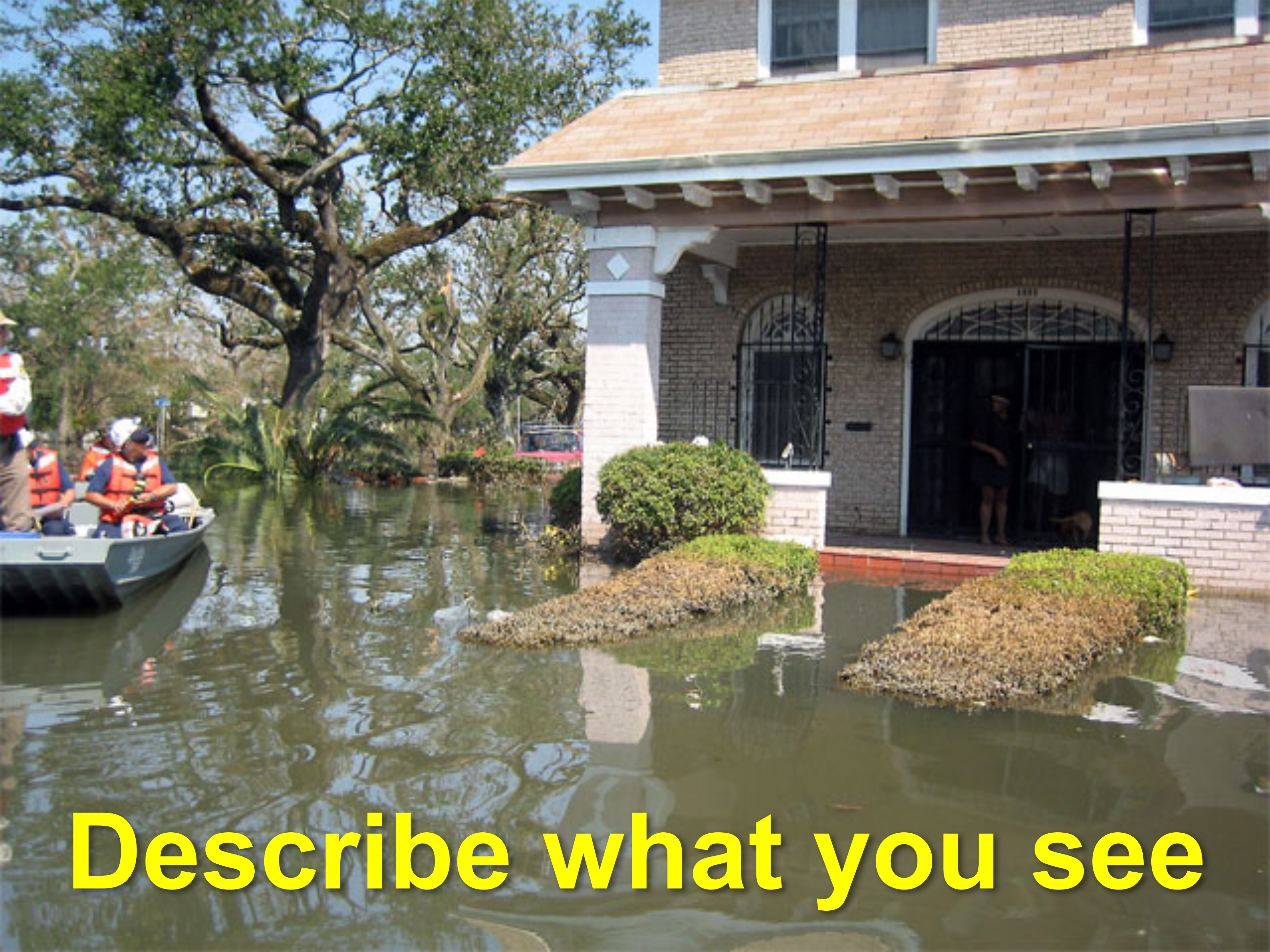
SLOW / LOCAL

- Soil contamination
- Sinkhole
- Water main Leak

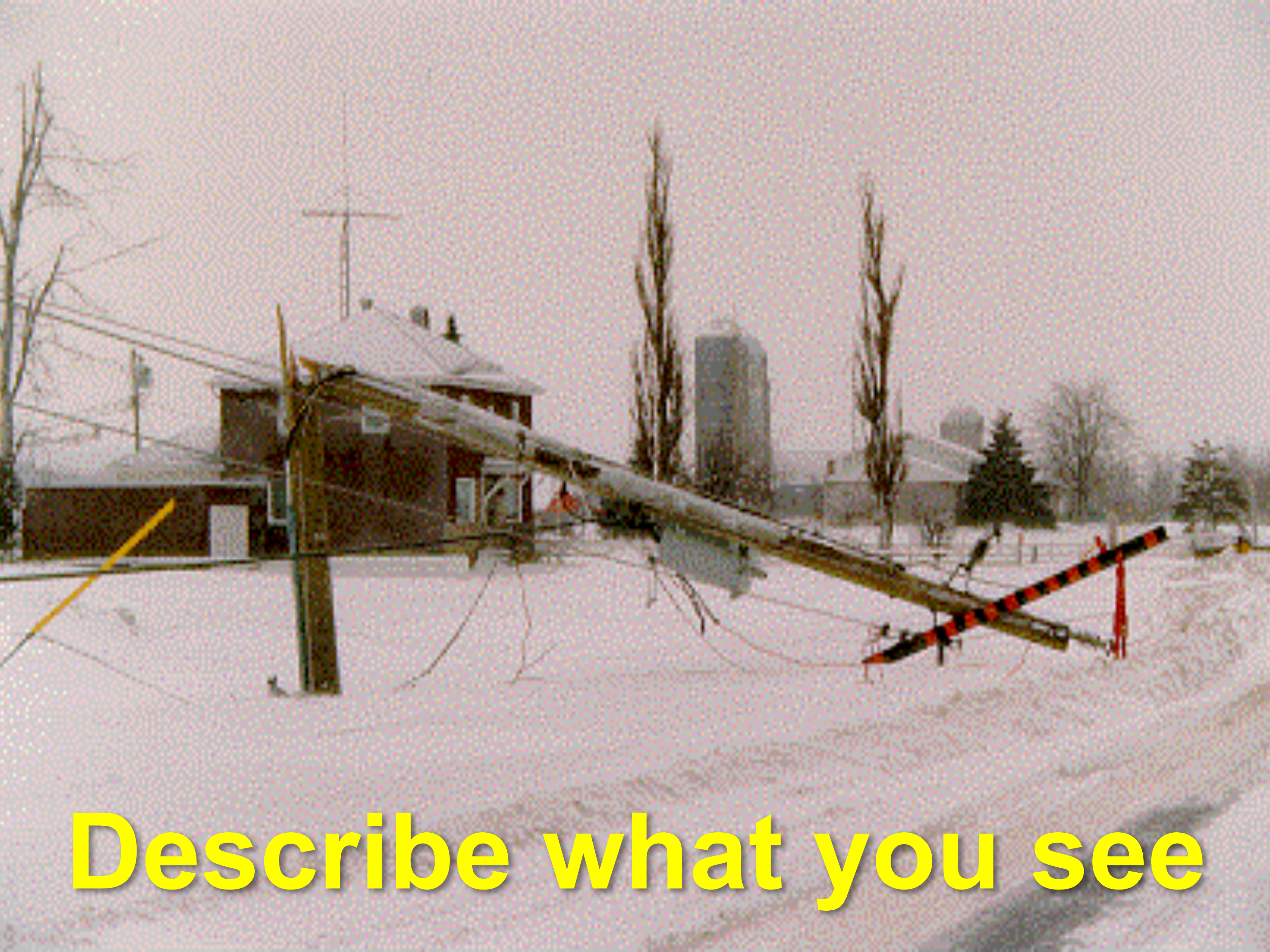
SLOW / REGIONAL

- Hurricane
- Flood
- Wildfire
- Pandemic

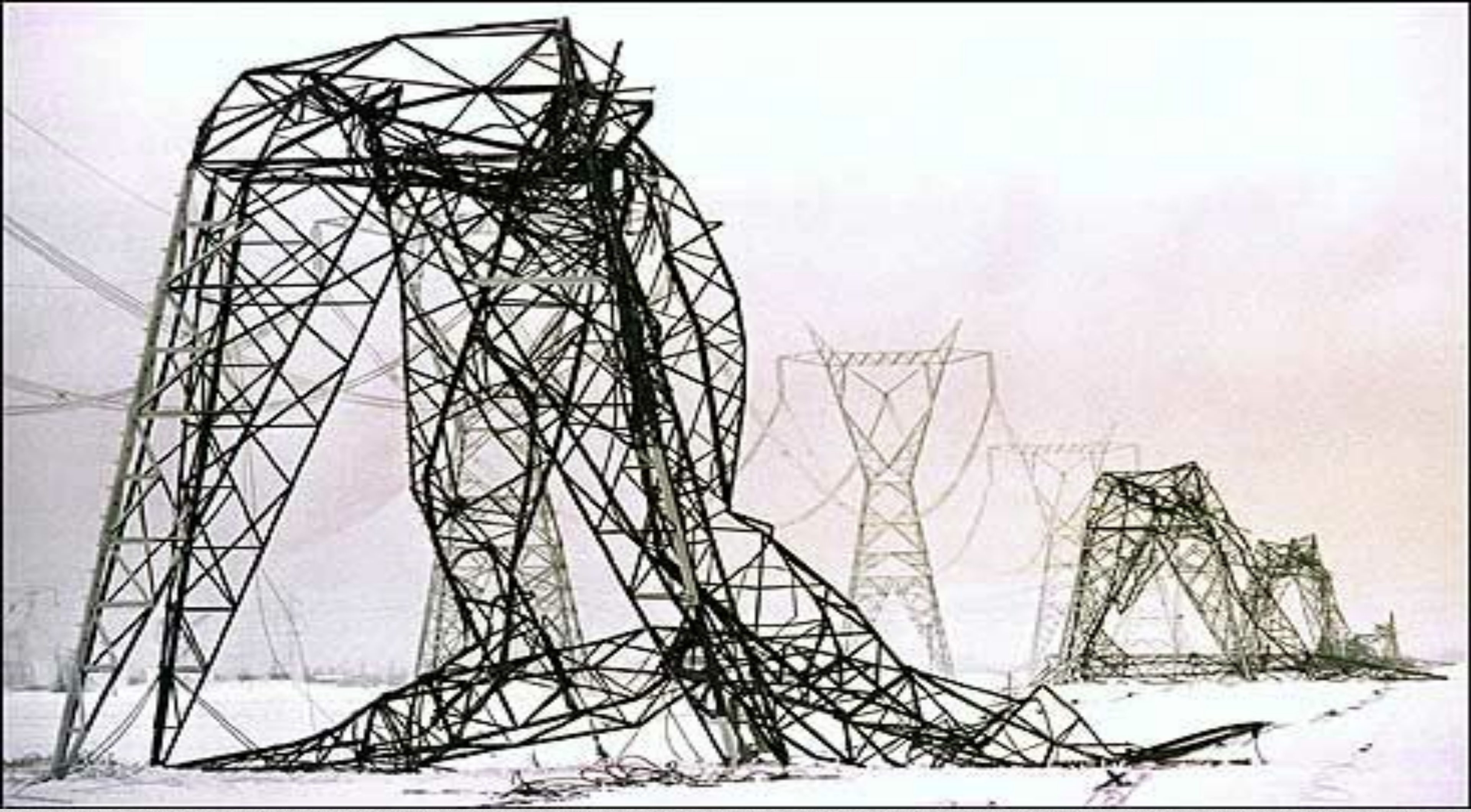
ABC NE
Exclu



Describe what you see



Describe what you see



Same Storm – 1998 Ice Storm

THE BIG 7

1. Scope will not be known
2. Communications will fail
3. Situation constantly changing
4. Emergency Services Affected
5. Unusual Response
6. Massive Convergence
7. Use of Volunteers

1. SCOPE NOT KNOWN

SCOPE UNCERTAIN

- You often cannot see everything
- With communications down, the ability to determine the scope is SEVERELY limited
- Taking a step back to determine the scope means leaving people dying
- If nobody is tasked to determine the scope, the response may be inappropriate

BLACK HOLES

- The worst hit areas are the last to be responded to.
- Edmonton Tornado – 40 minutes
- Kobe, Japan – 12 hours
- Hurricane Katrina – 2 days to 2 WEEKS
- San Francisco fire department neighborhood tours after earthquakes are a direct response to “scope unknown”

► LESSON FOR AR ◄

- Actively look for “black holes”, especially at the start
- It is just as important to know what is “fine” and “light damage/light casualties” as knowing where the worst is.
- Work from worst-case down
- Map it!

2. COMMUNICATIONS FAIL

COMMUNICATIONS FAIL

- Always
- Defining characteristic of a disaster
- Like the disaster itself, communications failures are very, very complex.
- Amateur Radio doesn’t understand
- 34 or more types of failure
- Which ones can AR fix?

COMMUNICATIONS FAIL

- Equipment Failure
- Frequency overuse
- Battery failure
- Inability to reach specific individual / organization / site
- Radios are not frequency agile
- Not familiar / trained / comfortable with equipment
- Passing of incorrect information
- Misunderstandings

Yesterday in Oklahoma, April 13, 2012 – The Oklahoman

► LESSON FOR AR ◄

- We will always have a place
- They can’t call you when communications are down
- Make yourself known BEFORE the disaster

3. SITUATION CHANGING

THINGS GET BETTER… OR WORSE

- Disasters never stay the same
- They get better due to nature or hard work.
- The get worse as things go wrong.
- It is never, ever static.

MUCH, MUCH LONGER

- You don’t go home at the end of your shift
- With emergencies, you have shift change and mutual aid
- Emergency services unprepared for the logistics of a second day, let alone a second week of response
- The length of time creates huge emotional issues and staffing issues.

► LESSON FOR AR ◄

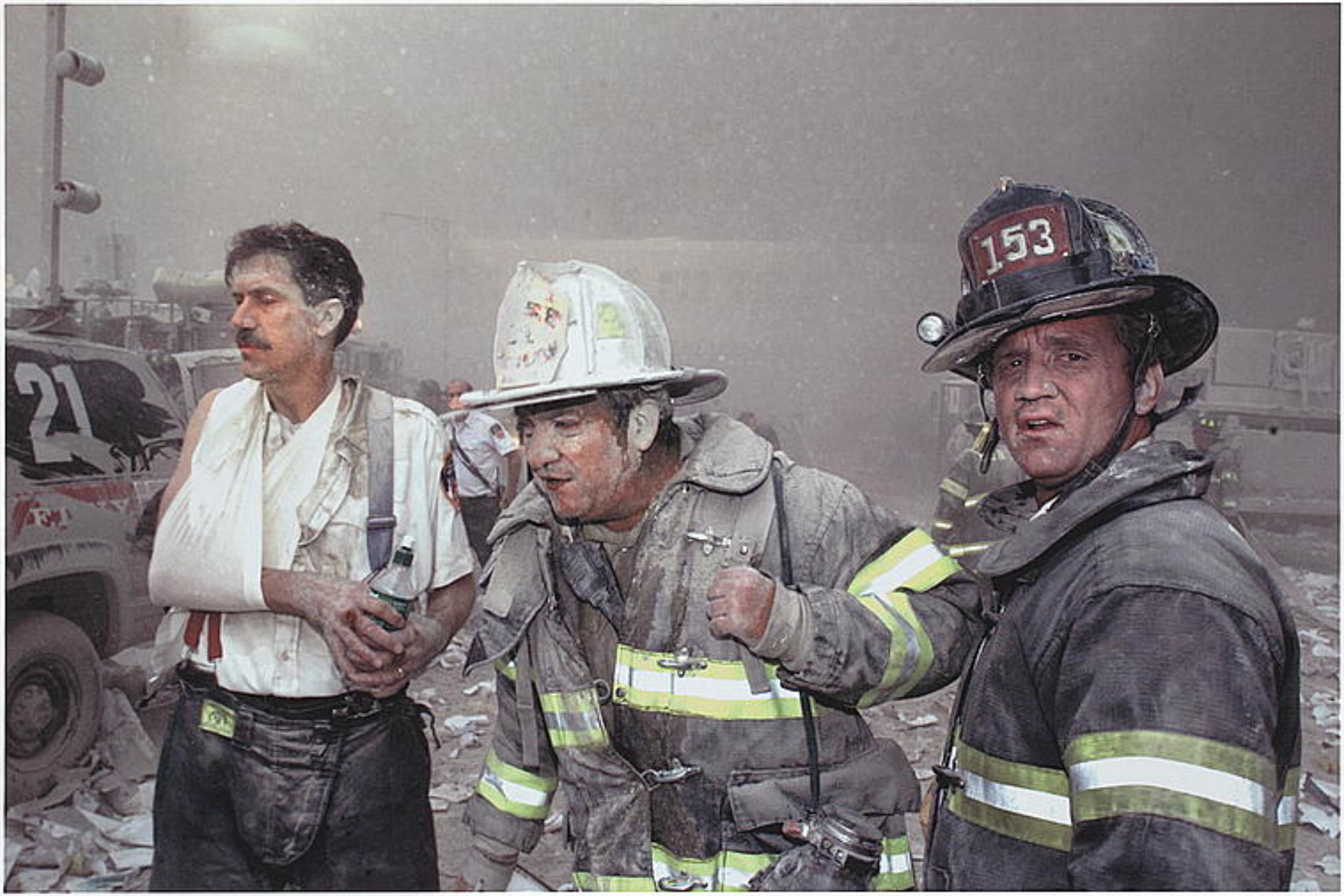
- Always start off sit-reps with "It's getting better/ worse"
- Use the 5W + H format
- 4 key: the Incident, the Response, the Desired Public Reaction, Desired AR response
- Display it, and repeat it!
- Prepare to be away for days.

4. EMERGENCY SERVICES AFFECTED

EMERGENCY SERVICES AFFECTED

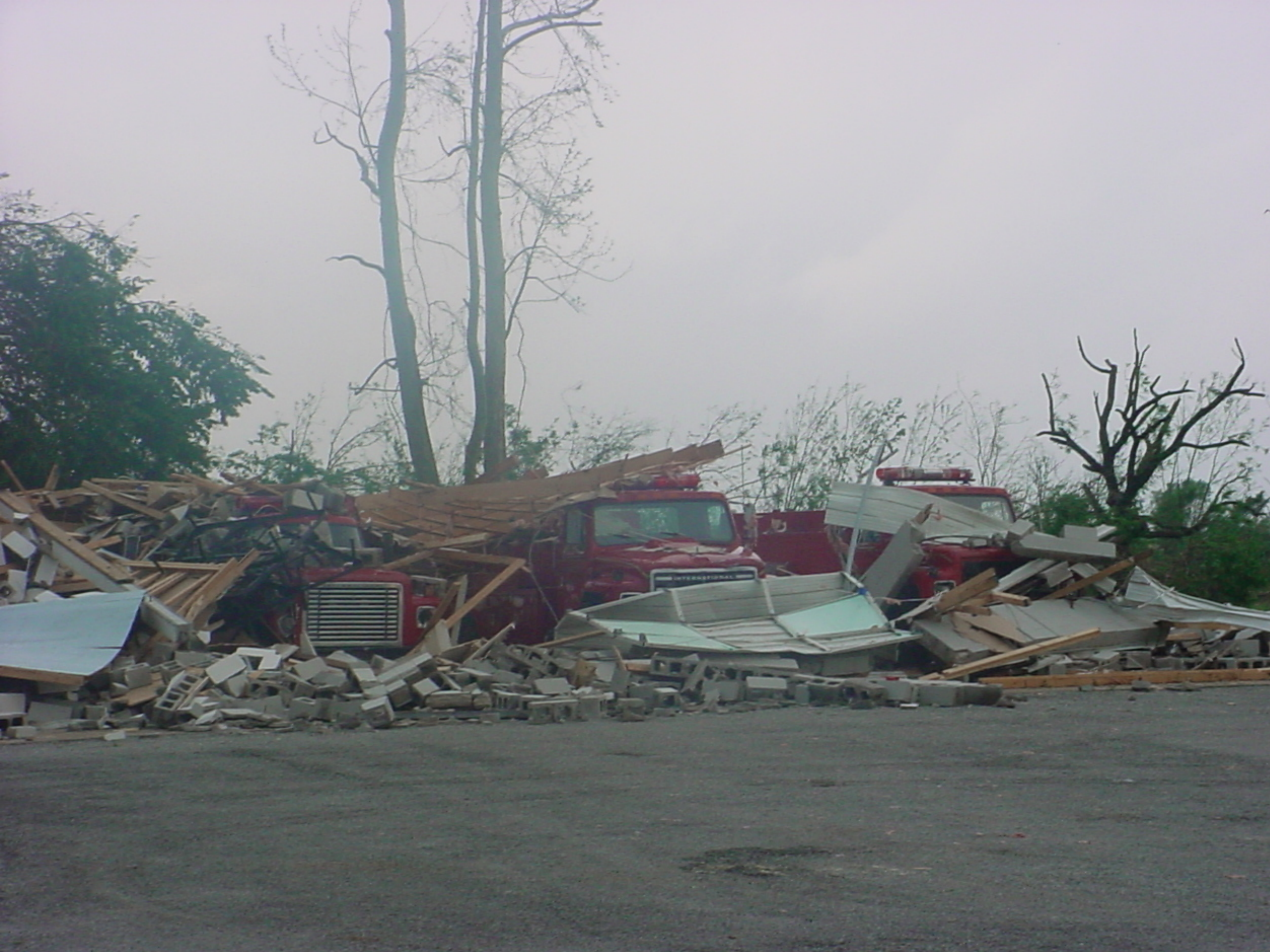
- Emergency responders are victims – no longer responders.
- Reduces ability to help restore things.
- One of the main reasons why out of town assistance may be needed.
- A defining characteristic of disasters

25
JOPLIN

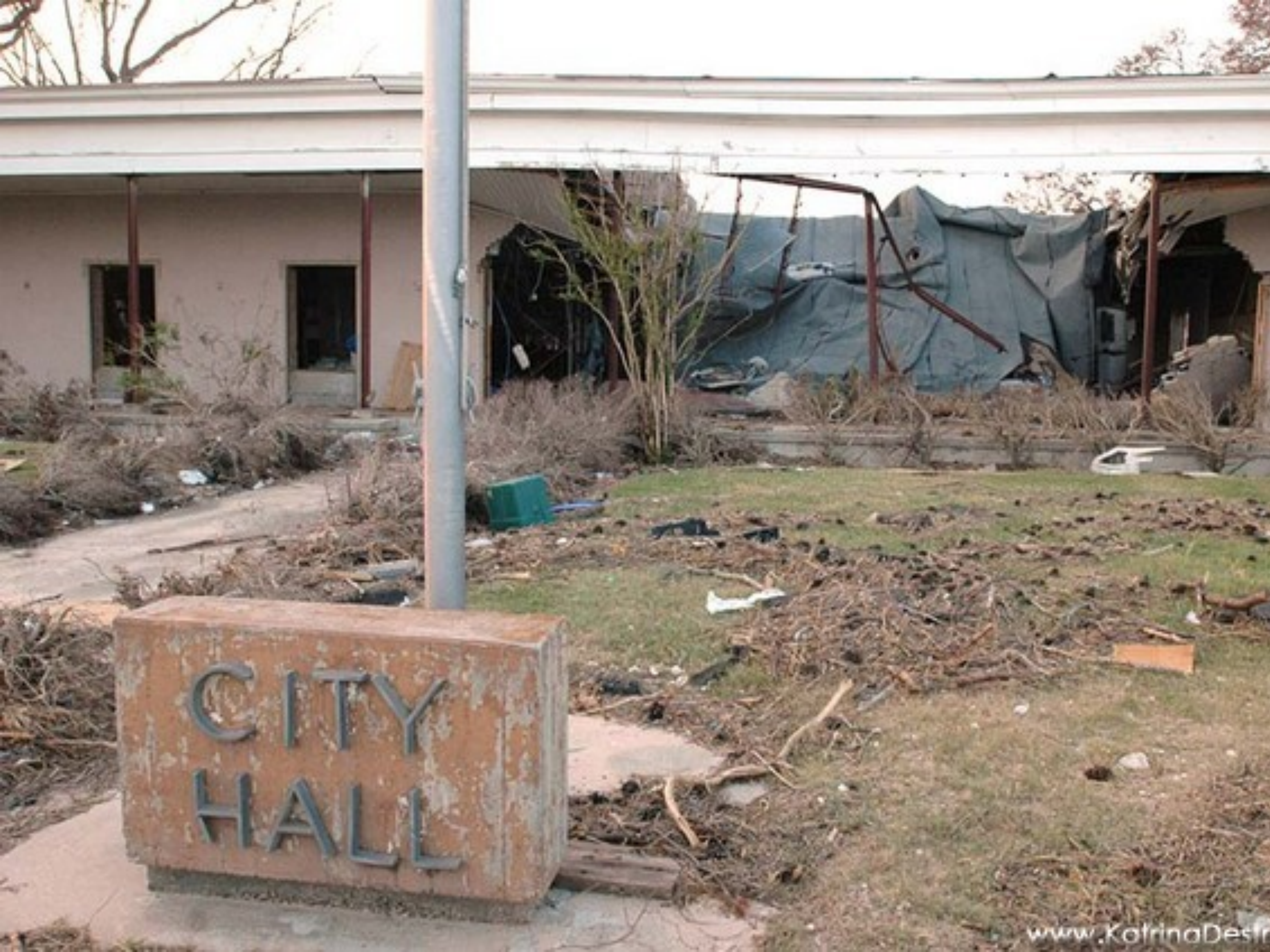


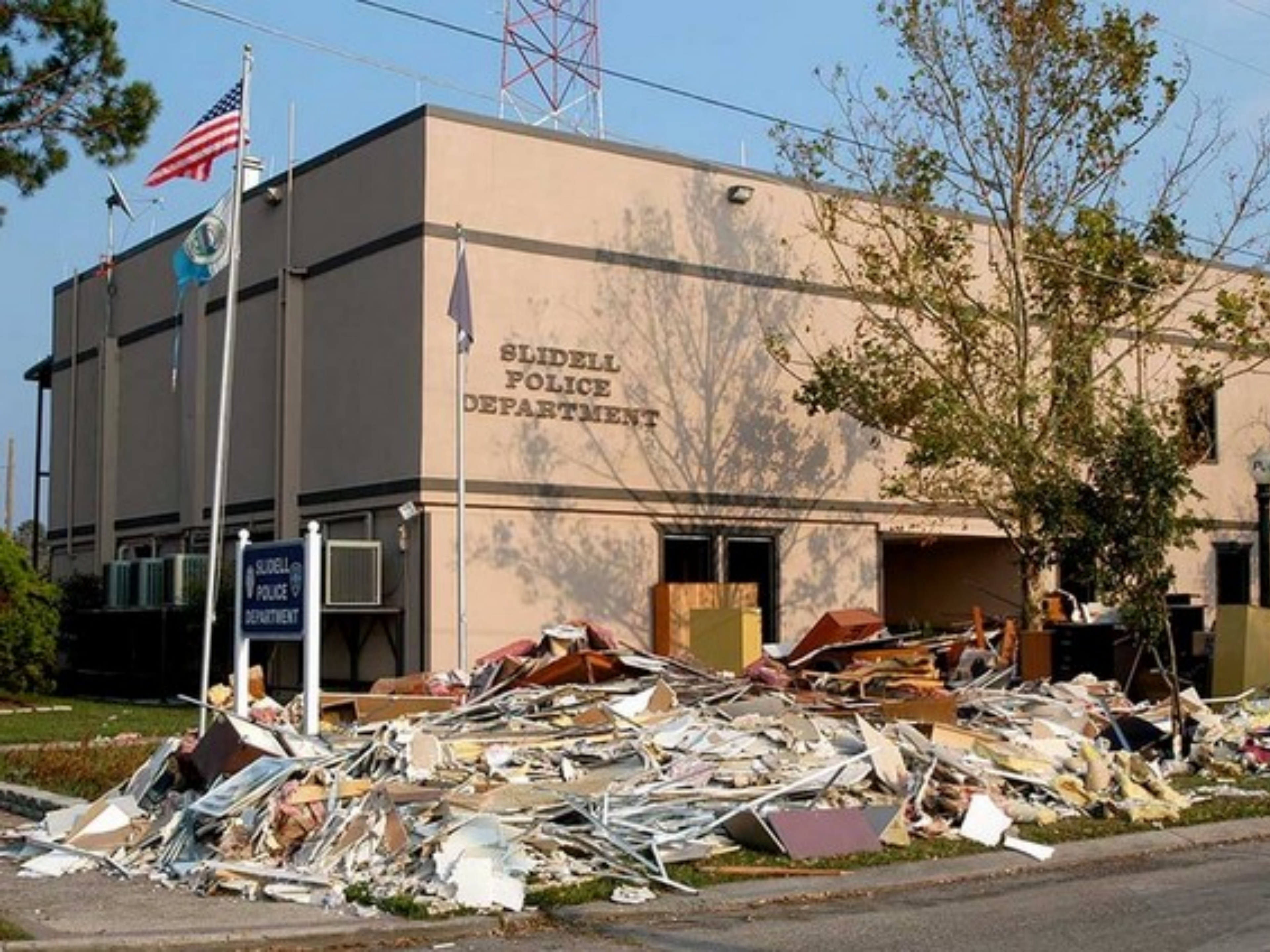
2001

CHURCH
DEY
N.Y. 219


INTERNATIONAL

AMBULANCE
CLEBURNE
EMS


CITY
HALL
www.KatrinaDes


SLIDELL POLICE DEPARTMENT
SLIDELL POLICE DEPARTMENT

6710

ONTARIO S.P.C.A.

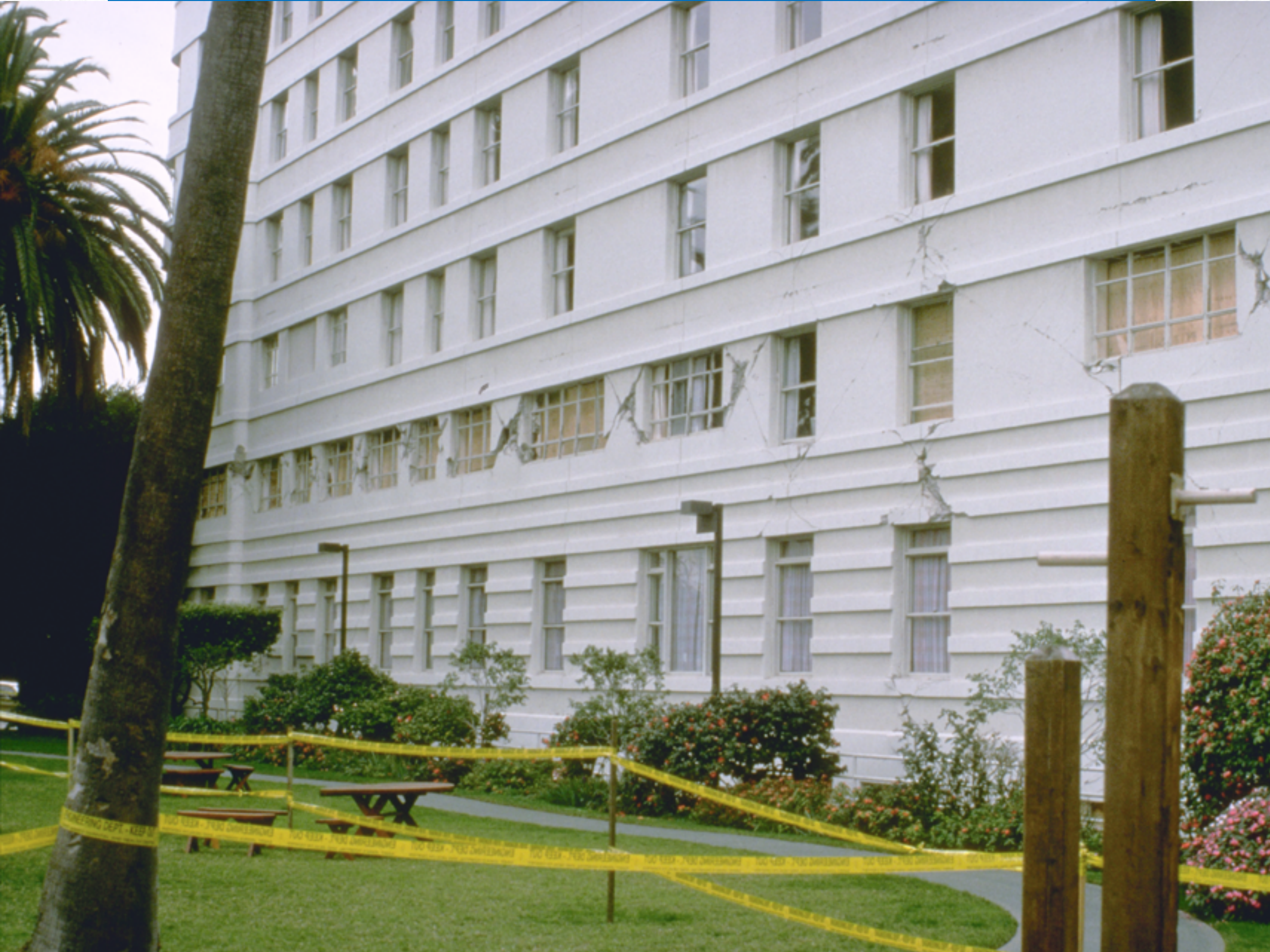
AMBULANCE

DO NOT ENTER

ONLY
LEFT TURN MUST YIELD ON

HOSPITALS AFFECTED

- Generally older buildings
- Expensive to replace
- Unable to earthquake-proof
- As susceptible as any other facility.
- High demands post-disaster


GINEERING DEPT - KEEP

► LESSON FOR AR ◄

- We are often told we aren’t needed – and then activated too late
- If it looks like a mass casualty incident, go to the hospital and sit in the parking lot
- If it looks like an evacuation, go to the reception centre and sit in the parking lot

6. MASSIVE CONVERGENCE

KOMATSU

AVES
NBC

POSI-PLUS

KOK

USGS
science for a changing world

AMBULANCE

Ryder
American
Red Cross
Disaster Rel
2138

SPECIAL OPERATIONS
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MULTILATOR
AA DURACELL
AA DURACELL
C DURACELL
C DURACELL
D DURACELL
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Call: 604-602-5850
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USED & BUDGET CENTRE
T22
FIRE DEPT.
Quest

KELOWNA
LADDER 1
102 FT
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FIRE DEPARTMENT
T1

CONVERGENCE

- A defining characteristic of the response.
- Not a little bit – A LOT!!!
- Convergence may create access problems of its own making.

- A research team studying a massive fire near Nanticoke, Canada, identified 346 organizations inside the evacuation perimeter of the fire - all of whom had to pass through a police checkpoint (Scanlon, 1992:9).
- Even for a plane crash in Detroit, the DRC found 241 organizations responding, including 59 fire departments and 69 agencies represented at the Emergency Operations Center.

CONVERGENCE ISSUES

- Who’s in charge?
- Whose jurisdiction?
- Who’s paying?
- Is equipment compatible?
- Allocation of scarce resources?

AN IMPORTANT NOTE

- Un-requested responders and volunteers are a detriment to the response and a drain on the resources.
- There is no way to cancel unneeded responders or volunteers as you don’t know they’re coming.
- Self-activation is strongly discouraged by the emergency services.

► LESSON FOR AR ◄

- Massive convergence often leads to ad-hoc locations without communications
- Think staging area, volunteer centre, command post, roadblocks, triage area

NOW FOR A BIT OF FUN!

HOW SHOULD AR RESPOND TO A DISASTER?

- Set up at a brewery
- Find a burger joint
- Get to the airport or train station
- Head for the parking lot
- Look for unaffected areas
- Yell for help!

5. UNUSUAL RESPONSE

- When regular emergency response is ineffective, alternatives are sought out
- With each unusual response is an unusual location requiring emergency communications
- Many of the resources needed are already in the community

UNUSUAL RESPONSE

DRINKING WATER
(Not For Sale)
Donated By
Anheuser-Busch, Inc.
Cartersville, GA 30120
12 FL. OZ.
Use Within One Year Of Date On Bottom Of Can

ER KING
NYPD TEMP HQ
NYPD TEMP HQ
NYPD
49¢
99¢
NCY POWER
NYPD
NYPD
NYPD

CN

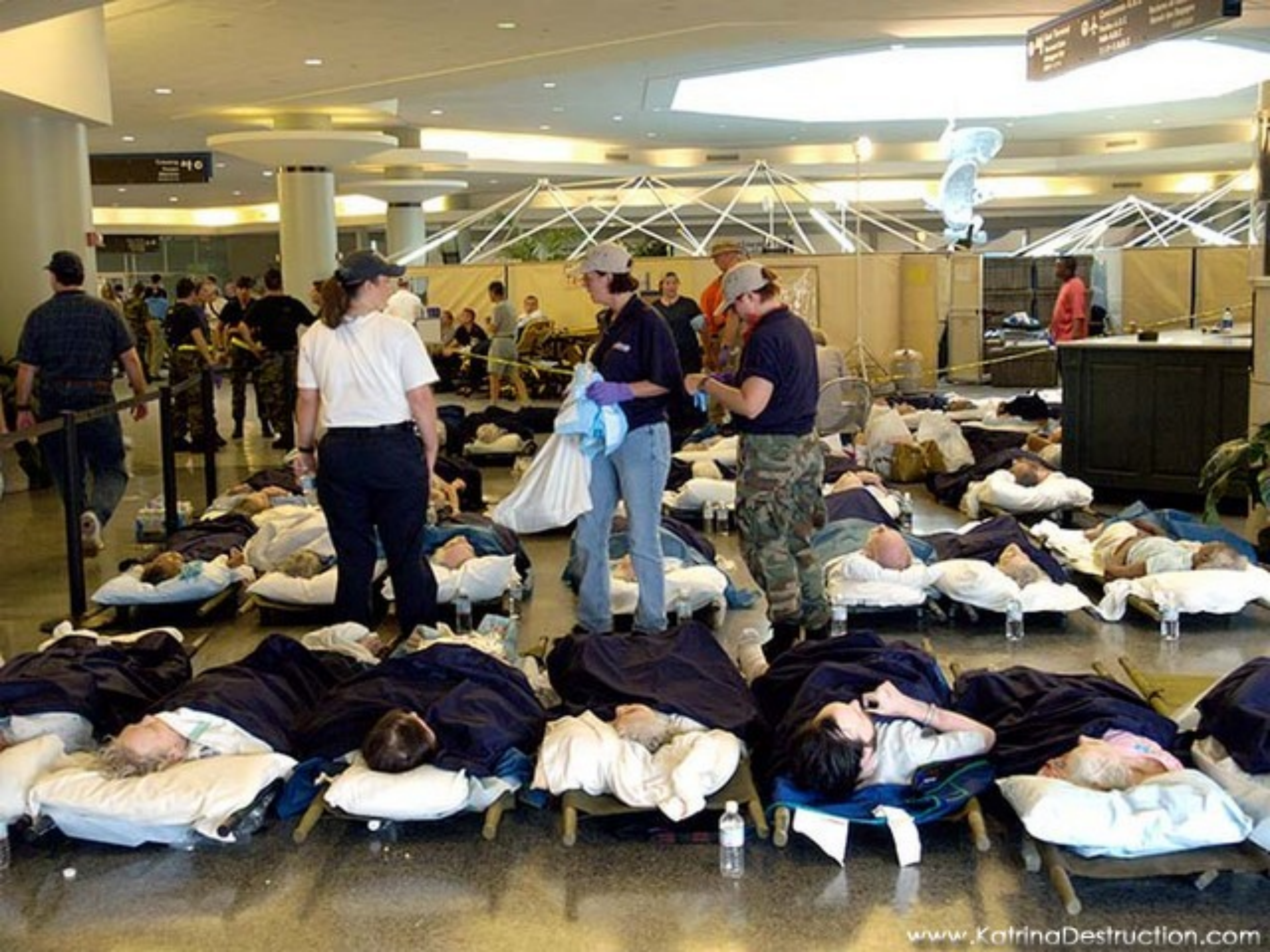
- You might need to know when the airport is out of operation!

USGS
science for a changing world

FREEMAN
HOSPITAL WEST
EMERGENCY
MAIN ENTRANCE
Smoke Free Campus
1102
TRD
24060

- Unusual responses often are accompanied by unusual locations.
- In Katrina
  - The bus station was a jail
  - The airport was a hospital
  - An overpass was a jail
  - A sports stadium was an evacuation centre.
  - Highways were landing strips

UNUSUAL LOCATIONS



www.KatrinaDestruction.com

► LESSON FOR AR ◄

- Every unusual response creates a need for communications

7. USE OF VOLUNTEERS

Wait to get called?

AR CONVERGENCE

- Please, converge!
- Not in a location, but on a frequency
- If comms failure is the first hallmark of disaster, then our response must be the first.
- Send ONE person into the official response.
- The rest can be spares / stood down

8. PEOPLE TAKE PICTURES OF POLES

Geoff Mackley

OTHER CHARACTERISTICS

- Things go wrong
- Last much longer than expected
- People aren’t prepared
- People ignore warnings
- Lessons are not learned
- Donations will be an utter disaster
- Looting will be exaggerated
- Etc., etc., etc.…

Weather

► LESSON FOR AR ◄

- Most disasters are weather caused or weather affected
- SKYWARN / CANWARN is one of the best uses of AR – tests our abilities and puts us in touch with emergency officials
- Weather reporting is more important than weather spotting.

CONCLUSION

1. Emergency Operations Centre
2. Incident Command Post / Site
3. Hospitals/Emergency Services
4. Reception Centres
5. Unusual Locations

WHAT TO COVER?

1. Radio Basics – get people on the air
2. Incident Command – integrate with the pros
3. Severe Weather Reporting – most likely disaster
4. Net Control – managing emergency comms
5. Formal Messaging – best practices / difficult conditions
6. Expand your horizons! ATV, D-Star, IRLP

WHAT TO LEARN?

WHEN WILL WE GET IT PERFECT?